


PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 0000053700 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416) | |
| International application No. PCT/EP 03/07085 | International filing date (<i>day/month/year</i>) 03.07.2003 | Priority date (<i>day/month/year</i>) 09.07.2002 |
| International Patent Classification (IPC) or both national classification and IPC C12N15/54 | | |
| Applicant BASF PLANT SCIENCE GMBH et al. | | |
| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p> | | |
| <p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p> | | |
| Date of submission of the demand 09.12.2003 | Date of completion of this report 15.11.2004 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Kania, T Telephone No. +49 89 2399-7703 | |



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/07085**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-24 as originally filed

Sequence listings part of the description, Pages

29-36 as originally filed

Claims, Numbers

1-27 as originally filed

Drawings, Sheets

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☒ contained in the international application in written form.
☒ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-18 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | |
| | No: Claims | 1-18 |
| Industrial applicability (IA) | Yes: Claims | 1-18 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/07085

The present report refers to the following documents cited in the search report:

- D1: STOROZHENKO S V ET AL: "Isolation of the transgenic potato plants expressing the mutant gene coding for acetolactate synthase from *Arabidopsis thaliana*." BIOPOLIMERY I KLETKA, vol. 10, no. 1, 1994, pages 67-71, ISSN: 0233-7657
- D2: WO 01/82685 A (PENG JIANYING ;HIRAYAMA LYNNE (US); AMERICAN CYANAMID CO (US); LOC) 8 November 2001 (2001-11-08)
- D3: US-A-5 767 366 (MURAI NORIMOTO ET AL) 16 June 1998 (1998-06-16)
- D4: WO 92/11376 A (AMYLOGENE HB) 9 July 1992 (1992-07-09)

Subject-matter of the application

The application relates to the creation of transgenic plants expressing a mutant AHAS sequence from *Arabidopsis*. Transgenic plants are insensitive to imidazolinone herbicides, which can be used for weed control. Selection of plants is carried out on medium containing the imidazolinone herbicide Imazamox as selectable agent. Imazamox further appears to have a cytokinin-like effect on transformed tissues. A high transformation efficiency of 500% is achieved by the present method. The examples comprise an antisense-construct of GBSSI for reducing amylose content in plants.

Novelty and Inventive step

1. The subject-matter of present claims 1-18 apparently has not been disclosed in the prior art and is thus regarded as **novel (Article 33(2) PCT)**.
2. D3 discloses the present mutant AHAS sequence and its use for conferring imidazolinone herbicide resistance to crop plants. Particularly, the employment for transgenic tobacco, a member of the plant family Solanaceae (like potato), is described. The use for potato, however, is not disclosed.
D1 discloses the transformation of potato plants with a mutant AHAS sequence derived from *Arabidopsis*.
D2 shows the creation of transgenic crop (cereal) plants carrying a mutant maize AHAS sequence and its use as selectable marker for screening on the presently used imidazolinone herbicide Imazamox.
The use of GBSSI antisense-constructs for the modification of starch in transgenic

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potatoes is disclosed in D4.

In the light of the teaching of D1, D2, and D3, it has to be regarded as entirely obvious to transfer the teaching of D3 to the use for potato as claimed in the present application.

In consequence, present claims 1-18 are **not inventive (Article 33(3) PCT)**.